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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/527,868	03/16/2005	Bernardus Hendrikus Wilhelmus Hendriks	NL 021251	2681

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EXAMINER	
COLLINS, DARRYL J	

ART UNIT	PAPER NUMBER
2873	

MAIL DATE	DELIVERY MODE
11/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/527,868	HENDRIKS ET AL.	
	Examiner	Art Unit	
	Darryl J. Collins	2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11,13-15 and 17* is/are rejected.

7)☒ Claim(s) *12,16,18 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 March 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11162005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 17 recites the limitation "second predetermined wavefront modifier" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 6-8, 10, 11, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartels (U.S. Patent Number 6,473,543).

Although Bartels teaches a switchable optical element (Figure 2a and 2b) having a first discrete state and a different, second discrete state (column 3, lines 55-62), the element comprising a fluid system (Figures 2a and 2b, elements 201 and F) including a first fluid (Figures 2a and 2b, element F) and a different , second fluid (Figures 2a and 2b, element 20 (empty)); a wavefront modifier having a face (column 3, lines 63-67) and a fluid system switch for acting on a fluid system to switch between the first and second discrete states of the element wherein the face of the wavefront modifier is substantially covered by the first fluid, when in the

first discrete state and wherein the face of the wavefront modifier is substantially covered by the second fluid when in the second discrete state as claimed in independent claim 1, Bartels fails to teach such an optical element having the fluid system switch comprising a configuration of electrodes arranged to act on the fluid system as claimed in the instant invention. However, Bartels does provide a functional equivalent (i.e., a piezoelectric actuator, (Figures 2a and 2b, element 24) for effecting a change in state for the optical element such that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the piezoelectric actuator as taught by Bartels as a functional equivalent within the switchable optical element as claimed to achieve a two state optical element for controlling the output light beam.

With regards to claim 6, Bartels teaches all of the claimed limitations as applied above with respect to claim 1, including a chamber in which the face of the wavefront modifier is located (Figures 2a and 2b, element 20), but fails to teach a two conduit system wherein the one fluid enters via one conduit while the second fluid exits via a second conduit, however, Bartels does teach the filling and evacuation of the first and second fluids via an actuator (Figures 2a and 2b, element 24) such that it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the functional equivalent of supplying or removing fluids from the switchable optical element to provide a dual state optical element as claimed in dependent claim 6.

With regards to claims 7 and 8, Bartels teaches a switchable optical element as applied above with respect to claim 1, wherein the face of the wavefront modifier comprises one or more protrusions (column 3, line 60) as claimed in dependent claim 7 wherein the protrusions are

arranged concentrically about an optical axis, which is an inherent and well-known feature for a Fresnel lens, as claimed in dependent claim 8 .

With regards to claims 10 and 11, Bartels teaches a switchable optical element as applied above with respect to claim 7, wherein the protrusions form a diffraction grating, wherein the protrusions form a non-periodic stepped profile in a direction traverse to the face, which again are inherent and well-known features for a Fresnel lens, as claimed in dependent claims 10 and 11.

With regards to claim 15, Bartels again teaches a switchable optical element as applied above with respect to claim 1, and further teaches wherein the optical element may be used in a scanning device (column 1, lines 6-16) as claimed in dependent claim 15.

With regards to claim 17, Bartels once again teaches a switchable optical element as applied above with respect to claim 15 wherein the second wavefront modifier is approximately flat (Figures 2a and 2b) as claimed in dependent claim 17.

Claims 4, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartels (U.S. Patent Number 6,473,543) as applied to claim 1 above, and further in view of Ebstein (U.S. Patent Number 5,091,801).

Although Bartels teaches all of the claimed limitations of the claimed invention, as outlined above with respect to independent claim 1, Bartels fails to teach a fluid optical system having a first electrode having an operative area wherein the face of the wavefront modifier and the operative area of the electrode are arranged substantially overlapping. Ebstein does teach a fluid optical system having a transparent electrode substantially overlapping a wavefront

modifier (Figure 3 and column 6, lines 66-67) such that it would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify the fluid optical system of Bartels with the well-known technique of using transparent electrodes as taught by Ebstein, to for the purpose of providing a uniform response as claimed in dependent claim 4.

With regards to claim 13, Ebstein is relied upon for the well-know teaching of the use of birefringent materials in a fluid optical system (column 7, lines 44-66) such that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the fluid optical system of Bartels with the well-known technique of using birefringent materials to control polarization.

With regards to claim 14, Ebstein also teaches the use of a liquid crystal material in a fluid optical system (column 7, lines 5-16) such that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the fluid optical system of Bartels with the well-known technique of using liquid crystal materials win a fluid optical system.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bartels (U.S. Patent Number 6,473,543) as applied to claim 1 above, and further in view of De Ment (U.S. Patent Number 3,641,354).

Although Bartels teaches all of the claimed limitations of the claimed invention, as outlined above with respect to independent claim 1, Bartels fails to teach a fluid optical system wherein the face of the wavefront modifier comprises protrusions that are linear and are arrange parallel each other. De Ment teaches a fluid optical system having a wavefront modifier having

a diffraction grating. Although not explicitly stated, it is well-known in the art of optics that diffraction grating may have linear parallel protrusions such that it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the optical system of Bartels with the well-known diffraction grating as taught by De Ment, to control the light beam as claimed in dependent claim 9.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 1 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 2 of copending Application No. 10/564,535. Although the conflicting claims are not identical, they are not patentably distinct from each other because both the instant invention and the co-pending application teach switchable optical

elements having two discrete states wherein a first fluid defines a first state and a second fluid defines a second state.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1-3 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 6 and 7 of copending Application No. 10/599,371. Although the conflicting claims are not identical, they are not patentably distinct from each other because again both the instant invention and the co-pending application teach switchable optical elements having two discrete states wherein a first fluid defines a first state and a second fluid defines a second state.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claims 1 and 5 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1and 3 of copending Application No. 10/596,761. Although the conflicting claims are not identical, they are not patentably distinct from each other because once again both the instant invention and the co-pending application teach switchable optical elements having two discrete states wherein a first fluid defines a first state and a second fluid defines a second state.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Allowable Subject Matter

Claims 12, 16, 18 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art taken either singularly or in combination fails to anticipate or fairly suggest the limitations of the independent claims, in such a manner that a rejection under 35 U.S.C. §102 or §103 would be proper. Although the prior art teaches a switchable optical element having a first discrete state and a different, second discrete state, the element comprising a fluid system including a first fluid and a different , second fluid; a wavefront modifier having a face and a fluid system switch for acting on a fluid system to switch between the first and second discrete states of the element wherein the face of the wavefront modifier is substantially covered by the first fluid, when in the first discrete state, and wherein the face of the wavefront modifier is substantially covered by the second fluid when in the second discrete state, the prior art fails to teach such an optical system further comprising a second wavefront modifier face, wherein the optical element has a third and a fourth discrete state as claimed in dependent claim 12, an optical scanning device wherein the first predetermined wavefront modification approximates spherical aberration and/or defocus as claimed in dependent claim 16, nor an optical scanning device wherein a radiation source is adapted to emit a third radiation beam wherein a third wavefront modification is provided on the third radiation beam when the element is in the second state as claimed in dependent claim 18.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Darryl J. Collins whose telephone number is 571-272-2325. The examiner can normally be reached on 6:30 - 5:00 Monday - Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack can be reached on 571-272-2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Darryl J. Collins
Patent Examiner
Art Unit 2873

31 October 2007